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Heat transfer bibliography—Japanese works

I. TANASAWA and S. NISHIO
Institute of Industrial Science, University of Tokyo, 7-22-1 Roppongi, Minato-ku, Tokyo 106, Japan

and

K. SUZUKI
Department of Mechanical Engineering, Kyoto University, Yoshidahoncho, Sakyo-ku, Kyoto 606-01, Japan

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CONDUCTION AND CONTACT RESISTANCE

Y. Inada, K. Tachibana and H. Kuramoto, A few remarks on characteristics of acoustical insulation and maintaining temperature for basement, *Memo. Fac. Engng Ehime Univ.* **12**(4), 97 (1993).

T. Ishiguro, A. Makino, N. Noda and N. Araki, Transient temperature response of material with distributed properties (usefulness of approximate solutions for the temperature response in FGM), *Trans. Japan Soc. Mech. Engrs* **B58**(556), 3690 (1992).

A. Majumdar and K. Fushinobu, Thermal and electrical modeling of sub-micron MESFETs, *Thermal Sci. Engng* (English) **1**(1), 1 (1993).

K. Nakajima, Theoretical study on the thermal contact resistance of a space-use deep groove ball bearing, *J. Japan Soc. Aeronaut Space Sci.* **40**(462), 376 (1992).

Y. Nakamura, S. Harada, S. Hirayama and Y. Watanabe, Thermal and stress analysis of metal insulated substrate coated with glass layer containing AIN particles (dedicated to Professor Teruaki Fujita), *Scientific Engng Rep. Natl. Defense Academy* **30**(1), 105 (1992).

T. Sugiura, H. Andoh, T. Tsukamoto and N. Hase, Consideration on a measurement for thermal resistance of semiconductor devices, *J. Toyota College Technol.* **25**, 33 (1992).

NATURAL CONVECTION

M. A. I. EL-Shaarawi and M. Al-Attas, Transient induced flow through a vertical annulus, *J.S.M.E. Int. J.*, Series II (English) **36**(1), 156 (1993).

T. Funada and T. Kubo, Nonlinear surface waves driven by the Marangoni instability of a liquid sheet, *Numazu College Technol. Res. Annual* **27**, 53 (1992).

T. Hanzawa, Y.-T. Hsiao, H. T. Yu and N. Sakai, Numerical analysis of heat transfer from package in refrigerating room with laminar downflow, *J. Chem. Engng Japan* (English) **25**(3), 307 (1992).

O. Hirayama and R. Takaki, Thermal convection of a fluid with temperature-dependent viscosity, *Nagare* (*J. Japan Soc. Fluid Mech.*) **11**(2), 107 (1992).

O. Hirayama and R. Takaki, Thermal convection of a fluid with temperature-dependent viscosity II, *Nagare* (*J. Japan Soc. Fluid Mech.*) **11**(3), 200 (1992).

K. Hirose, F. Saito and M. Ohuchi, A numerical study of natural convection heat transfer in concentric horizontal elliptical annuli, *Rep. Technol. Iwate Univ.* **45**, 27 (1992).

M. Ishikawa, T. Hirata and H. Tamaki, Heat transfer correlations of natural convection with density inversion in a vertical enclosure, *Trans. Japan Soc. Mech. Engrs* **B59**(558), 564 (1993).

Y. Kato, T. Tanahashi and K. Ota, Finite-element analysis of natural convection in concentric horizontal annuli, *Trans. Japan Soc. Mech. Engrs* **B58**(547), 686 (1992).

Y. Kato and T. Tanahashi, Finite-element method for three-dimensional incompressible viscous flow using simultaneous relaxation of velocity and Bernoulli function (2nd report, natural convection in horizontal concentric annuli), *Trans. Japan Soc. Mech. Engrs* **B58**(551), 2100 (1992).

S. Kimura, Y. Masuda and K. Hayasi, Natural convection in an anisotropic porous medium heated from the side (effects of anisotropic properties of porous matrix), *Trans. Japan Soc. Mech. Engrs* **B58**(550), 1860 (1992).

T. Kimura, M. Takeuchi and T. Miyanaga, Natural convection heat transfer in inclined rectangular enclosure (effects of thermal conductivity of inner body on heat transfer rate), *Trans. Japan Soc. Mech. Engrs* **B58**(547), 850 (1992).

K. Kitamura and F. Kimura, Heat transfer and fluid flow of natural convection over horizontal heated plate, *Trans. Japan Soc. Mech. Engrs* **B58**(556), 3715 (1992).

A. Kurosawa, H. Akino, T. Otsuji, S. Kizu, K. Kobayashi, K. Iwahori, T. Takeda and Y. Ito, Fundamental study on thermo-hydraulic phenomena concerning passive safety of advanced marine reactor, *J. Nucl. Sci. Technol.* (English) **30**(2), 131 (1993).

T. Maekawa, K. Abe and I. Tanasawa, Onset of natural convection under electric field, *Trans. Japan Soc. Mech. Engrs* **B58**(548), 1313 (1992).

T. Masuoka, Y. Takatsu, H. Nakamura and T. Tsuruta, Channelling flow and heat transfer characteristics of porous insulating layer, *Trans. Japan Soc. Mech. Engrs* **B58**(551), 2227 (1992).

T. Masuoka, Y. Takatsu, S. Kawamoto, H. Koshino and T. Tsuruta, Buoyant plume through a permeable porous layer located above a line heat source in an infinite fluid space, *Trans. Japan Soc. Mech. Engrs* **B59**(558), 507 (1993).

T. Misumi and K. Kitamura, Heat transfer enhancement of natural convection and development of a high-performance heat transfer plate, *J.S.M.E. Int. J.*, Series II (English) **36**(1), 143 (1993).

K. Momose, H. Setokawa, T. Asami and Y. Hosokawa, Local characteristics of heat transfer from a vibrating cylinder, *Trans. Japan Soc. Mech. Engrs* **B58**(555), 3437 (1992).

H. Mori and H. Ogata, Natural convection heat transfer to liquid helium in a high centrifugal accelration field, *Trans. Japan Soc. Mech. Engrs* **B58**(547), 832 (1992).

H. Murata and M. Osakabe, Heat transfer characteristics in horizontal fluid layer with honeycomb, *Trans. Japan Soc. Mech. Engrs* **B58**(550), 1912 (1992).

K. Noto, K. Teramoto and T. Nakajima, Spectrum and critical Grashof number on turbulent transition of the plume above a line heat source, *Trans. Japan Soc. Mech. Engrs* **B58**(555), 3413 (1992).

K. Noto, S. Maeda and T. Nakajima, Temperature characteristics of the swaying plume above a line heat source in thermally stable stratified air, *Trans. Japan Soc. Mech. Engrs* **B58**(555), 3421 (1992).
K. Noto, K. Tsutsui and T. Nakajima, Plume pattern with swaying motion amplified by thermally stable stratification, *Trans. Japan Soc. Mech. Engrs* **B58**(555), 3429 (1992).
K. Noto, M. Honda and T. Nakajima, Time-averaged temperature characteristics in transition and turbulent regions of the plume above a line heat source, *Trans. Japan Soc. Mech. Engrs* **B59**(558), 513 (1993).
K. Noto, H. Okamoto and T. Nakajima, Time-dependent temperature characteristics in transition and turbulent regions of the plume above a line heat source, *Trans. Japan Soc. Mech. Engrs* **B59**(558), 521 (1993).
K. Sasaguchi, H. Takeo and H. Kimura, Laminar natural convection heat transfer in an enclosure with fins (effects of aspect ratio and other parameters on unsteady heat transfer), *Trans. Japan Soc. Mech. Engrs* **B58**(550), 2024 (1992).
T. Tanaka, K. Kurita and A. Kuroda, Mathematical modelling on liquid metal flow in a cold crucible coupled with heat transfer, *Tetsu to Hagane* (*J. Iron Steel Inst. Japan*) **78**(4), 572 (1992).
N. Taniguchi, Y. Usui, M. Furuya, Y. Miki, K. Fukuda and S. Hasegawa, Unsteady three-dimensional behavior of natural convection in horizontal annulus, (IV)—application of LES to turbulent natural convection, *J. Atom Energy Soc. Japan* **34**(10), 995 (1992).
N. Taniguchi, Y. Miki, Y. Usui, S. Hasegawa and K. Fukuda, Large eddy simulation of turbulent natural convection in horizontal annulus, *Engng Sci. Rep. Kyushu Univ.* (*Kyushu Daigaku Sogorikogaku Kenkyuka Hokoku*) **13**(4), 387 (1992).
H. Yamazaki, T. Sakamoto, R. Nakadake and Y. Uwano, Basic cooling characteristics of disk windings using a U-bend supply of perfluorocarbon liquid for nonflammable transformers, *J.S.M.E. Int. J.*, Series II (English) **35**(3), 465 (1992).
H. Yamazaki, T. Sakamoto, R. Nakadake and Y. Uwano, Basic cooling characteristics of disk windings immersed in perfluorocarbon liquid for mid-capacity transformers, *Trans. Japan Soc. Mech. Engrs* **B58**(551), 2281 (1992).
H. Yamazaki, T. Sakamoto and Y. Uwano, Natural circulating flow and winding cooling characteristics for a self-cooled transformer model cooled by perfluorocarbon liquid, *Trans. Japan Soc. Mech. Engrs* **B59**(557), 249 (1993).

FORCED CONVECTION

A. K. Abdel-Rahman, M. Sahashi, K. Suzuki, Y. Hagiwara and H. Takaura, Turbulent heat transfer in a channel with injection (in the region around the starting point of injection), *Trans. Japan Soc. Mech. Engrs* **B58**(549), 1523 (1992).
A. K. Abdel-Rahaman, K. Suzuki and Y. Hagiwara, Internal flow with transpiration and related heat transfer (1st report, effective numerical method using multigrid method and third-order upwind scheme), *Trans. Japan Soc. Mech. Engrs* **B58**(549), 1636 (1992).
K. Fukui, S. Shoya and T. Kanki, Structure of density-stratified turbulent flow over a flat plate of suddenly-changed spanwise wall temperature, *Kagaku Kogaku Ronbunshu* (*Trans. Chem. Engng Japan*) **18**(6), 827 (1992).
Y. Fukui, T. Morita and K. Fukuda, Forced convection heat transfer of high temperature gases in a circular tube with constant wall temperature, *Rev. Kobe Univ. Mercantile Marine Part II, Maritime Studies Sci. Engng* **40**, 167 (1992).
K. Funazaki, T. Meguro and S. Yamawaki, Studies of the unsteady boundary layer on a flat plate subjected to incident wakes (1st report, forced transition model of the boundary layer), *Trans. Japan Soc. Mech. Engrs* **B58**(549), 1400 (1992).
K. Funazaki, T. Meguro and S. Yamawaki, Studies of the unsteady boundary layer on a flat plate subjected to incident wakes (2nd report, experimental verification of the forced transition model), *Trans. Japan Soc. Mech. Engrs* **B58**(550), 1761 (1992).
H. Fuse, S. Torii and M. Arizono, Flow and heat transfer characteristics behind circular cylinders with different size, *Res. Rep. Fac. Engng Kagoshima Univ.* **34**, 17 (1992).
N. Hattori and K. Tokunaga, Convection heat transfer from three circular cylinders to water at relatively low Reynolds numbers, *Trans. Japan Soc. Mech. Engrs* **B59**(558), 556 (1993).
M. Hirota, H. Fujita, H. Yokosawa, S. Kagami and T. Murofushi, Forced convection heat tansfer for turbulent flow in a square duct with a rough wall (characteristics of a mean temperature field), *Trans. Japan Soc. Mech. Engrs* **B58**(548), 1200 (1992).
M. Hori, J. Yata and T. Minamiyama, Effects of free stream turbulence on turbulent boundary layer on a flat plate with zero pressure gradient (3rd report, contribution of turbulent length scales), *Trans. Japan Soc. Mech. Engrs* **B58**(549), 1530 (1992).
K. Ichimiya and Y. Nakamura, Heat transfer of a single circular impinging jet considered on heat conduction in a heated plate, *Trans. Japan Soc. Mech. Engrs* **B58**(550), 2031 (1992).
K. Ichimiya, T. Kunugi, N. Akino and S. Shinkai, Numerical analysis of the laminar heat transfer and flow situation around a square rod spacer in a flow passage, *Trans. Japan Soc. Mech. Engrs* **B58**(554), 3147 (1992).
M. Iguchi, A. Tokunaga, H. Tatemichi and Z. Morita, Heat transfer between bubbles and liquid during cold gas injection, *Tetsu to Hagane* (*J. Iron Steel Inst. Japan*) **78**(3), 415 (1992).
T. Inagaki, Theoretical study of transport mechanisms of turbulent combined convection along a vertical flat plate, *J. Toyota College Technol.* **25**, 7 (1992).
K. Inaoka, K. Suzuki, H. Suzuki, Y. Hagiwara and K. Suzuki, Augmentation of turbulent heat transfer with a vortex generator attached to a LEBU plate, *Trans. Japan Soc. Mech. Engrs* **B58**(551), 2241 (1992).
K. Kobayashi, K. Hishida and M. Maeda, Turbulent transport phenomena across the stable thermal stratified layer formed in a cicular pipe, *Trans. Japan Soc. Mech. Engrs* **B58**(549), 1536 (1992).
M. Kobayashi, H. Maekawa, T. Takano and M. Kobayashi, Experimental study of turbulent heat transfer in a two-dimensional curved channel (time-mean temperature and multiple temperature/velocity correlations in the entrance section), *Trans. Japan Soc. Mech. Engrs* **B58**(547), 857 (1992).
H. Koizumi and I. Hosokawa, Controlling the generation of Bénard cells in combined convection in a horizontal rectangular duct heated from below (evidence of chaotic flows), *Trans. Japan Soc. Mech. Engrs* **B58**(547), 891 (1992).
T. Kojima, T. Hagiwara and K. Nishiwaki, Wall-temperature dependence of the heat transfer coefficient in exothermic boundary layers, *Trans. Japan Soc. Mech. Engrs* **B58**(553), 2812 (1992).
S. Kotoh, G. Yamanaka and T. Katayama, Airflow analysis around outdoor units of air conditioners used in a high building (evaluations of a short cycle between inlet and outlet), *J.S.M.E. Int. J.*, Series II (English) **36**(1), 184 (1993).
H. Miyashita, M. Yoshida and Y. Kondo, Heat transfer enhancement with semicircular cylinder turbulence promoters (effect of position of a turbulence promotor relative to film thickness), *Kagaku Kogaku Ronbunshu* (*Trans. Chem. Engng Japan*) **18**(2), 189 (1992).
Y. Nagano, M. Tagawa and M. Tohzumi, Well-ordered motions and relevant heat transfer in wall turbulence, *Trans. Japan Soc. Mech. Engrs* **B58**(553), 2819 (1992).
T. Nagasaki, K. Fushinobu, K. Hijikata and R. Kurazume, A study on heat transfer from small heating elements in an integrated circuit chip, *Trans. Japan Soc. Mech. Engrs* **B58**(551), 2234 (1992).
T. Nakayama and J. Iwasaki, A note on outflow boundary conditions for the finite element analysis of internal viscous

flows with heat transfer, *Trans. Japan Soc. Mech. Engrs* **B58**(554), 2989 (1992).

M. Obata, H. Taniguchi and K. Kudo, Analytical investigation on the cooling performance of a return-flow gaseous-cooled gas turbine rotor blade, *Trans. Japan Soc. Mech. Engrs* **B58**(550), 1975 (1992).

K. Oyakawa, T. Koike and I. Mabuchi, Studies of heat transfer control by using jet discharge at reattachment region downstream of a backward-facing step (1st report, effect of jet locations and jet velocities), *Trans. Japan Soc. Mech. Engrs* **B59**(558), 543 (1993).

M. Sano, Fluid flow and heat transfer in a periodically diverging–converging turbulent channel flow (velocity profile and turbulence characteristics), *Trans. Japan Soc. Mech. Engrs* **B58**(549), 1386 (1992).

M. Sano, Enhancement of heat transfer in a rectangular turbulent channel flow using thin inclined plates, *Trans. Japan Soc. Mech. Engrs* **B58**(551), 2248 (1992).

H. Sato, Y. Nagano and M. Tagawa, Distributions of turbulence quantities and their production, diffusion and dissipation in the thermal entrance region of a pipe, *Trans. Japan Soc. Mech. Engrs* **B58**(553), 2840 (1992).

M. Senda, K. Oda, S. Kikkawa, S. Okamoto and T. Funabiki, Heat transfer in an axisymmetric confined jet with bluff body, *Trans. Japan Soc. Mech. Engrs* **B58**(550), 1898 (1992).

N. Suzuki, A. Matsumoto, Y. Nagano and M. Tagawa, Anisotropy of heat transport and its modeling in homogeneous turbulent flow, *Trans. Japan Soc. Mech. Engrs* **B58**(552), 2565 (1992).

J. S. Szmyd, K. Suzuki, Z. S. Kolenda and J. A. C. Humphrey, A study of thermo-fluid phenomena with uncertainties by making use of interactive computational–experimental methodology, *J.S.M.E. Int. J.*, Series II (English) **35**(4), 599 (1992).

Y. Tada, A. Takimoto, S. Omura and Y. Hayashi, Active heat transfer enhancement in a gas–solid suspensions flow by utilizing an electric field (particle behavior and heat transfer in a channel flow), *Trans. Japan Soc. Mech. Engrs* **B58**(551), 2221 (1992).

S. Tanabe, Y. Kashiwada, T. Hayashi and H. Iwata, The effects of a wall boundary layer on local heat transfer from a circular cylinder in cross flow, *Trans. Japan Soc. Mech. Engrs* **B59**(558), 550 (1993).

M. Tatsuno, T. Toritani, H. Amamoto and K. Ishii, Developing process of the boundary layer flow passing over a heat source, *Bull. Res. Inst. App. Mech. Univ. Kyushu* **74**, 175 (1992).

S. Torii, A. Shimizu, S. Hasegawa and M. Higasa, Numerical analysis of laminarizing cicular tube flows by means of a Reynolds stress turbulence model, *Trans. Japan Soc. Mech. Engrs* **B58**(551), 2274 (1992).

S. Ueda, N. Sakuranaka, T. Saito, K. Itoh, Y. Wakamatsu and K. Imai, A study on heat transfer in a scramjet leading edge model, *Tech. Rep. Nat. Aerospace Lab.* TR-1187T (1992).

T. Ueda, O. Hisai, I. N. G. Wardana and M. Mizomoto, Structure of grid turbulence through a heated screen, *J.S.M.E. Int. J.*, Series II (English) **35**(2), 266 (1992).

M. Wang, T. Tsuji and Y. Nagano, Numerical analysis of combined free and forced laminar convection of liquid metals in a horizontal pipe, *Trans. Japan Soc. Mech. Engrs* **B58**(555), 3382 (1992).

J. I. Yanagihara and K. Torii, Enhancement of laminar boundary layer heat transfer by a vortex generator, *J.S.M.E. Int. J.*, Series II (English) **35**(3), 400 (1992).

Y. Yin, Y. Nagano and M. Tagawa, Numerical prediction of turbulent heat transfer in high-Prandtl-number fluids, *Trans. Japan Soc. Mech. Engrs* **B58**(551), 2254 (1992).

BOILING AND EVAPORATION

M. Aritomi, J. H. Chiang, T. Nakahashi, M. Wataru and M. Mori, Fundamental study of thermo-hydraulics during start-up in natural circulation boiling water reactors, (I) thermo-hydraulic instabilities, *J. Nucl. Sci. Technol.* (English) **29**(7), 631 (1992).

H. Honda, H. Takamatsu, H. Yamashiro and S. Kobayashi, Heat transfer characteristics during rapid quenching of a thin wire in water, *Trans. Japan Soc. Mech. Engrs* **B58**(550), 1904 (1992).

H. Honda, H. Takamatsu, H. Yamashiro and H. Matsuo, Heat transfer characteristics during rapid quenching of thin platinum wire (heat transfer enhancement with calcium chloride solution), *Trans. Japan Soc. Mech. Engrs* **B58**(554), 3135 (1992).

E. Ishibashi, Z. H. Liu, T. Chirifu and N. Murakami, Pool boiling heat transfer characteristics of the surface-worked heat tubes in narrow spaces under reduced pressure conditions, *Trans. Japan Soc. Mech. Engrs* **B59**(557), 198 (1993).

T. Ito, Y. Takata and M. M. M. Mousa, Studies on the water cooling of hot surfaces (analysis of spray cooling in the region associated with film boiling), *J.S.M.E. Int. J.*, Series II (English) **35**(4), 589 (1992).

M. Kaminaga and Y. Sudo, Experimental study of differences in CHF between upflow and downflow in vertical rectangular channels, *Trans. Japan Soc. Mech. Engrs* **B58**(553), 2799 (1992).

Y. Katto, K. Watanabe, J. Takeoka, M. Taka, Y. Nakamura and T. Norioka, An analytical study on critical heat flux of countercurrent boiling in a vertical tube with a closed bottom, *Trans. Japan Soc. Mech. Engrs* **B58**(547), 839 (1992).

O. Kido, H. Yoneda, H. Kan, H. Uehara and A. Miyara, Evaporation heat transfer and pressure drop of HCF22 inside a horizontal rectangular channel, *Trans. JAR* **9**(1), 33 (1992).

R. Kubo, R. Shimada and S. Kumagai, Relationship between sound and heat transfer on microbubble emission boiling, *Trans. Japan Soc. Mech. Engrs* **B59**(557), 183 (1993).

T. Kumada, H. Sakashita and H. Yamagishi, Studies on pool boiling heat transfer (3rd report, measurement of departure frequency for coalesced bubbles and proposal of semi-empirical relations), *Trans. Japan Soc. Mech. Engrs* **B58**(552), 2498 (1992).

T. Kumada and H. Sakashita, Studies on pool boiling heat transfer (4th report, thickness of liquid macrolayer formed beneath vapour masses), *Trans. Japan Soc. Mech. Engrs* **B58**(552), 2505 (1992).

T. Kumada and H. Sakashita, Studies on pool boiling heat transfer (5th report, critical heat flux of horizontal thin wires), *Trans. Japan Soc. Mech. Engrs* **B58**(552), 2512 (1992).

Z. H. Liu and E. Ishibashi, Study on highly efficient cooling of rotating roll (1st report, boiling heat transfer characteristics of a hot cylinder revolving in a pool and in annular narrow spaces), *Trans. Japan Soc. Mech. Engrs* **B58**(556), 3709 (1992).

K. Maeno, S. Yokoyama and Y. Nanaoka, Behavior of the bubble produced by pulsed laser irradiation in cryogenic liquid (experiment in liquid nitrogen), *J. Fac. Engng Chiba Univ.* **43**(2), 23 (1992).

Y. Matsumoto and F. Takemura, Effect of internal phenomena on bubble motion (1st report, effects of thermal diffusion, phase change on the gas–liquid interface and mass diffusion between vapor and noncondensable gas at the collapsing phase), *Trans. Japan Soc. Mech. Engrs* **B58**(547), 645 (1992).

J. Min and Y. Kikuchi, Heat transfer characteristics of evaporation of a liquid droplet on hot surfaces, *Trans. Japan Soc. Mech. Engrs* **B58**(551), 2206 (1992).

K. Murata and S. Nishio, Mechanism of film-boiling onset in transient cooling process with highly subcooled water and unstable boiling–cooling phenomena, *Tetsu to Hagane (J. Iron Steel Inst. Japan)* **79**(1), 55 (1993).

S. Nishio and N. Nagai, Attempt to predict full boiling curve of saturated pool boiling, *Trans. Japan Soc. Mech. Engrs* **B58**(549), 1490 (1992).

S. Nishio and H. Ohtake, Natural-convection film-boiling heat transfer (6th report, heat transfer correlation of film boiling with wavy interface), *Trans. Japan Soc. Mech. Engrs* **B58**(554), 3161 (1992).
S. Nishio and H. Ohtake, natural-convection film-boiling heat transfer (film-boiling from horizontal cylinders in middle- and small-diameter regions), *J.S.M.E. Int. J.*, Series II (English) **35**(4), 580 (1992).
H. Ohtake and S. Nishio, Natural-convection film-boiling heat transfer (4th report, experiments of subcooled film boiling with long vapor film), *Trans. Japan Soc. Mech. Engrs* **B58**(547), 845 (1992).
H. Ohtake and S. Nishio, Natural-convection film-boiling heat transfer (5th report, model analysis of subcooled film boiling with wavy interface), *Trans. Japan Soc. Mech. Engrs* **B58**(554), 3153 (1992).
T. Oka, Y. Abe, Y. H. Mori and A. Nagashima, Aircraft experiments on microgravity pool boiling (vapor–liquid behavior and heat transfer characteristics in boiling of *n*-pentane, CFC-113 and water), *Trans. Japan Soc. Mech. Engrs* **B58**(550), 1867 (1992).
T. Oka, Y. Abe, K. Tanaka, Y. H. Mori and A. Nagashima, Observational study of pool boiling under microgravity, *J.S.M.E. Int. J.*, Series II (English) **35**(2), 280 (1992).
T. Okamura, N. Yamashita and Y. Yoshizawa, Boiling heat transport in a vertical pressurized He II channel—heating at the midpoint of the channel, *Cryogenic Engng* **27**(6), 502 (1992).
K. Okuyama and Y. Iida, Film boiling heat transfer with catalytic decomposition reaction, *Trans. Japan Soc. Mech. Engrs* **B58**(547), 824 (1992).
H. Sakashita and T. Kumada, Studies on pool boiling heat transfer (6th report, critical heat flux on vertical wires), *Trans. Japan Soc. Mech. Engrs* **B58**(552), 2518 (1992).
Y. Shibata, Y. Hagiwara and K. Suzuki, A numerical study of evaporating heat transfer of nonazeotropic binary mixtures flowing upward in a vertical tube, *Trans. Japan Soc. Mech. Engrs* **B58**(550), 1883 (1992).
M. Shoji and X. Y. Zhang, Study of contact angle hysteresis (in relation to boiling surface wettability), *Trans. Japan Soc. Mech. Engrs* **B58**(550), 1853 (1992).
M. Shoji, S. Yokoya and Z. L. Huang, A study of transition boiling heat transfer (steady boiling of water on a horizontal copper surface), *Trans. Japan Soc. Mech. Engrs* **B58**(551), 2214 (1992).
H. Takamatsu, S. Momoki and T. Fujii, A correlation for forced convective boiling heat transfer of single-component refrigerants in a horizontal smooth tube, *Trans. Japan Soc. Mech. Engrs* **B58**(550), 1875 (1992).
H. Takamatsu, S. Momoki and T. Fujii, A correlation for forced convective boiling heat transfer of nonazeotropic refrigerant mixtures of HCFC22/CFC114 in a horizontal smooth tube, *Trans. Japan Soc. Mech. Engrs* **B58**(551), 2198 (1992).
K. Takano, I. Tanasawa and S. Nishio, Enhancement of evaporation of droplet using EHD effect (3rd report, onset of instability of gas–liquid interface under electric field imposed stepwise), *Trans. Japan Soc. Mech. Engrs* **B59**(557), 212 (1993).
T. Takashima and Y. Iida, A study on mechanism of spontaneous vapor explosions with single molten tin drops and water, *Trans. Japan Soc. Mech. Engrs* **B59**(557), 219 (1993).
F. Takemura and Y. Matsumoto, Effect of internal phenomena on bubble motion (2nd report, effects of transport phenomena and mist formation inside bubble at the expanding phase), *Trans. Japan Soc. Mech. Engrs* **B58**(551), 2060 (1992).
I. Taniguchi and K. Asano, Experimental study of the effect of neighboring solid spheres on the rates of evaporation of a drop and prediction of void function, *J. Chem. Engng Japan* (English) **25**(3), 321 (1992).
S. Yokoyama, Y. Hanaoka and I. Tokura, An experimental study on flashing phenomenon of liquid nitrogen, *Trans. Japan Soc. Mech. Engrs* **B58**(549), 1498 (1992).

CONDENSATION

T. Fujii, On the reference temperature of physical properties in the correlation equation for forced-convection condensation of a pure vapor, *Trans. Japan Soc. Mech. Engrs* **B58**(547), 820 (1992).
T. Fujii, K. Shinzato and J. B. Lee, Free-convection condensation of air-steam mixture on a vertical surface (comparison between theory and experiment), *Trans. Japan Soc. Mech. Engrs* **B58**(549), 1617 (1992).
K. Hijikata, O. Nakabeppu, D. Kariya and V. Navrotsky, Theoretical analysis of condensation in a horizontal tube (case: stratified flow and complete condensation), *Trans. Japan Soc. Mech. Engrs* **B59**(557), 255 (1993).
S. Kamei and M. Hirata, Control of oscillation noise caused by condensing vapor in water (2nd report, effect of buffer created near injecting orifices), *Trans. Japan Soc. Mech. Engrs* **B58**(548), 1178 (1992).
H. Maeda, Direct-contact condensation heat transfer of Freon vapor in the water stream, *Rep. Fac. Sci. Technol. Meijo Univ.* **32**, 86 (1992).
M. Takahashi, H. Fujinuma, J. Tsukui and A. Inoue, Experimental study on condensation heat transfer on surface of liquid jet, *J. Nucl. Sci. Technol.* (English) **29**(8), 721 (1992).
T. Teranishi, A. Takimoto, N. Takahashi and Y. Hayashi, Condensation heat transfer of binary vapors of immiscible liquids on vertical plates with enhanced fins, *Trans. Japan Soc. Mech. Engrs* **B58**(554), 3123 (1992).
Y. Utaka, Investigation on realization of the transition phenomena and heat transfer measurement in condensation curves, *Trans. Japan Soc. Mech. Engrs* **B59**(558), 535 (1993).
T. Yamanishi, K. Okuno, Y. Naruse and E. Sada, Analysis of characteristics of cryogenic distillation column in separation of hydrogen isotopes, *J. Chem. Engng Japan* (English) **26**(1), 1 (1993).
H. Zhu and H. Honda, Optimization of fin geometry of a horizontal low-finned condenser tube, *Trans. Japan Soc. Mech. Engrs* **B58**(555), 3464 (1992).

MULTIPHASE FLOW

H. Akimoto and Y. Murao, Development of reflood model for two fluid model code based on physical models used in REFLA code, *J. Nucl. Sci. Technol.* (English) **29**(7), 642 (1992).
Y. Asao, M. Ozawa and N. Takenaka, Circulation characteristics and density wave oscillation in a natural circulation loop of liquid nitrogen, *Japan J. Multiphase Flow* **6**(2), 159 (1992).
T. Fujii, T. Nakazawa, H. Yamada, O. Muragishi, N. Takenaka and J. Ohta, Behavior of a horizontal gas–liquid two-phase flow under microgravity (flow pattern and film construction in annular flow region), *Trans. Japan Soc. Mech. Engrs* **B58**(555), 3286 (1992).
M. Furukawa, H. Kanuma, K. Sekoguchi and M. Takeishi, Two-phase flow patterns in high temperature generator of absorption chiller/heater, *Trans. JAR* **9**(1), 17 (1992).
A. Gofuku, K. Shimizu, K. Sugano, T. Morimoto, H. Yoshikawa, J. F. Kaminaga, Y. Okamoto and Y. Shibata, Study of entrance geometry effect on flooding and analysis using local void fraction, *J.S.M.E. Int. J.*, Series II (English) **35**(4), 529 (1992).
S. Nakanishi, T. Sawai and S. Yamauchi, An experimental study on chaotic behavior of thermohydraulic oscillation in an evaporating tube, *Trans. Japan Soc. Mech. Engrs* **B59**(557), 204 (1993).
M. Nakazatomi, K. Sekoguchi, H. Shimizu and T. Ochiai, Effects of pressure on void fraction in vertical upwards gas–liquid two-phase flow, *Trans. Japan Soc. Mech. Engrs* **B58**(551), 2190 (1992).
M. Osakabe, T. Kubo and H. Baba, Top flooding in thin rectangular channels, *Trans. Japan Soc. Mech. Engrs* **B58**(549), 1624 (1992).

H. Shimizu, K. Sekoguchi, M. Nakazatomi and K. Mori, Effect of pressure on flow parameters in horizontal gas–liquid two-phase plug flow, *Trans. Japan Soc. Mech. Engrs* **B58**(549), 1504 (1992).
K. Torikai, K. Suzuki, H. Tahara and A. Hirata, On the annular counter-current two-phase flow (fluid flow resistance and observation of liquid film in flooding), *Trans. Japan Soc. Mech. Engrs* **B58**(548), 1037 (1992).
T. Ueda and Y. Koizumi, Two-phase mixture level swell in vertical pipes, *Trans. Japan Soc. Mech. Engrs* **B58**(547), 904 (1992).
K. Usui, Annular two-phase flow in a C-shaped bend (liquid film flow), *Trans. Japan Soc. Mech. Engrs* **B58**(552), 2524 (1992).
O. Watanabe, N. Heya, Y. Ohmi and H. Fujita, On the low-quality dryout in helical coiled tubes placed horizontally, *Trans. Japan Soc. Mech. Engrs* **B58**(547), 911 (1992).
O. Watanabe, K. Nakajima and H. Fujita, Charcteristics of liquid film thickness of air–water annular two-phase flow in helically coiled tubes (vertical coil), *Trans. Japan Soc. Mech. Engrs* **B58**(554), 3128 (1992).

MELTING AND SOLIDIFICATION

T. Chiba, M. Okada and K. Matsumoto, Melting process of clathrate in rectangular cell, *Trans. JAR* **9**(2), 169 (1992).
S. Fukusako, M. Yamada and M. Kim, Melting heat transfer of liquid ice in a rectangular cavity with heated vertical wall, *Trans. Japan Soc. Mech. Engrs* **B58**(552), 2535 (1992).
A. Horibe, S. Fukusako, M. Yamada and K. Narita, Ice-accretion characteristics in a cold air stream with seawater droplets, *Trans. JAR* **9**(1), 43 (1992).
H. Inaba, K. Takeya and S. Nozu, Fundamental study on continuous ice making using flowing supercooled water, *Trans. Japan Soc. Mech. Engrs* **B58**(548), 1321 (1992).
H. Inaba, H. Otake and S. Nozu, Fundamental study on a horizontal frost layer melted from above by radiative heat, *Trans. Japan Soc. Mech. Engrs* **B58**(555), 3373 (1992).
I. Ishihara, Study on heat and mass transfer under frosting condition—3rd report: theoretical analysis satisfied a saturation condition between temperature and concentration of water vapor in the case of forced convection, *Trans. JAR* **9**(2), 127 (1992).
T. Maeda, Enthalpy methods by implicit scheme for solidification simulation, *Trans. Japan Soc. Mech. Engrs* **B58**(553), 2834 (1992).
K. Matsumoto, M. Okada and T. Terao, Freezing of solution on a horizonal plate and melting of frozen solution (analytical discussion considering mass diffusion), *Trans. JAR* **9**(3), 223 (1992).
H. Mizukami, T. Suzuki and T. Umeda, Effect of surface roughness and surface material of substrate on initial solidification structure of 18Cr–8Ni stainless steel, *Tetsu to Hagane* (*J. Iron Steel Inst. Japan*) **78**(4), 580 (1992).
H. Mizukami, H. Suzuki and T. Umeda, Numerical analysis for initial stage of rapid solidification of 18Cr–8Ni stainless steel, *Tetsu to Hagane* (*J. Iron Steel Inst. Japan*) **78**(5), 767 (1992).
H. Mizukami, T. Suzuki and T. Umeda, Control of initial solidification structure of rapidly solidified 18Cr–8Ni stainless steel, *Tetsu to Hagane* (*J. Iron Steel Inst. Japan*) **78**(8), 1369 (1992).
T. Munakata, A. Yabe and I. Tanasawa, Effect of electric field on frosting phenomenon, *Trans. Japan Soc. Mech. Engrs* **B58**(548), 1171 (1992).
A. Narumi, T. Kashiwagi and I. Nakane, Cooling and freezing behaviors of aqueous sodium chloride solution in a closed rectangular container—1st report, the effect of types of partitions, *Trans. JAR* **9**(2), 135 (1992).
I. Ohta, M. Okada and K. Matsumoto, Radiative melting of a semitransparent material in a rectangular dimple, *Trans. Japan Soc. Mech. Engrs* **B59**(557), 161 (1993).
S. Okawa and A. Saito, The relationship between temperature distribution due to natural convection and freezing of supercooled water, *Trans. JAR* **9**(1), 53 (1992).
K. Sasaguchi and H. Takeo, Solid/liquid phase-change heat transfer in porous media (numerical analysis for melting from a bottom surface with conduction plates), *Trans. Japan Soc. Mech. Engrs* **B58**(549), 1511 (1992).
M. Sugawara, S. Sasaki and T. Fujita, Melting of snow by aqueous solution with low solidification temperature (2nd report, characteristic of melting of snow with some aqueous solutions of NaCl, $CaCl_2$ and $MgCl_2$) *Trans. Japan Soc. Mech. Engrs* **B58**(550), 1832 (1992).
I. Sumi, K. Sassa and S. Asai, Model experiment and theoretical analysis for the effect of electromagnetic pressure on surface quality of continuous castings, *Tetsu to Hagane* (*J. Iron Steel Inst. Japan*) **78**(3), 447 (1992).
M. Tago, S. Fukusako, M. Yamada and A. Horibe, Freezing behavior on convex wall of a return bend with rectangular cross section, *Trans. Japan Soc. Mech. Engrs* **B58**(553), 2863 (1992).
M. Tago, S. Fukusako, M. Yamada and A. Horibe, Melting point, super-cooling and solidification behavior of molten salt, *Japan J. Thermophys. Prop.* **6**(3), 154 (1992).
Y. Watanabe, Characteristics of $NaCH_3COO \cdot 3H_2O$ melt nucleation induced by Na_2SeO_3 as a nucleation agent, *Kagaku Kogaku Ronbunshu* (*Trans. Chem. Engng Japan*) **18**(4), 448 (1992).
Y. Watanabe, Nucleation characteristics of $NaCH_3COO \cdot 3H_2O$ melt with sodium oxysalts, *Kagaku Kogaku Ronbunshu* (*Trans. Chem. Engng Japan*) **18**(5), 593 (1992).
M. Yamada, S. Fukusako, H. Morizane and M. H. Kim, Melting heat-transfer along a bundle of horizontal heated tubes in liquid ice, *Trans. Japan Soc. Mech. Engrs* **B58**(553), 2805 (1992).
B.-J. Yoon and C.-K. Kim, A simple method for obtaining the power distribution yielding a desired temperature distribution in zone-melting recrystallization, *Japan J. Appl. Phys.* (English) **31**(10), 3414 (1992).

POROUS MEDIA, FLUIDIZED OR PACKED BED

Y. Chuma, S. Murata and M. Iwamoto, Unsteady state heat transfer in packed bed of farm product, *Bull. Kumamoto Inst. Technol.* **17**(1), 133 (1992).
K. Fukuda, T. Kondoh and S. Hasegawa, Relationship between heat transfer and pressure drop of porous materials, *Engng Sci. Rep. Kyushu Univ.* (*Kyushu Daigaku Sogorikogaku Kenkyuka Hokoku*) **14**(2), 213 (1992).
H. Ishiguro, K. Ichikawa and H. Nariai, Unsteady local structure of fluidization and heat transfer around a horizontal heated circular cylinder in a gas–solid fluidized bed (effect of diameters of fluidizing particles and heat transfer mechanism), *Trans. Japan Soc. Mech. Engrs* **B58**(550), 1889 (1992).
S. Kimura, Y. Masuda and K. Hayashi, Efficient numerical method based on double porosity model to analyze heat and fluid flows in fractured rock formations, *J.S.M.E. Int. J.*, Series II (English) **35**(3), 395 (1992).
N. Nakagawa, K. Ohsawa, T. Takarada and K. Kato, Continuous drying of a fine particles–water slurry in a powder-particle fluidized bed, *J. Chem. Engng Japan* (English) **25**(5), 495 (1992).
H. Ogura, M. Miyazaki, H. Matsuda and M. Hasatani, Numerical analysis of heat transfer in particle-bed reactor with fins in chemical heat pump using $Ca(OH)_2/CaO$ reaction, *Kagaku Kogaku Ronbunshu* (*Trans. Chem. Engng Japan*) **18**(5), 669 (1992).
J. Wang, R. Takahashi and J. Yagi, A simulation model on fluid flow and heat transfer in packed bed with melting phenomenon, *Tetsu to Hagane* (*J. Iron Steel Inst. Japan*) **78**(7), 1124 (1992).
F. Watanabe, Y. Watabe, H. Katsuyama, J. Kozuka and M. Hastani, Heat transfer accompanied by adsorption/

desorption of water vapour in adsorption heat pump of packed bed type, *Kagaku Kogaku Ronbunshu* (*Trans. Chem. Engng Japan*) **19**(1), 83 (1993).
T. Watanabe, Y. Chen, I. Naruse and M. Hasatani, Gas–solid interfacial heat transfer in circulating fluidized beds, *Kagaku Kogaku Ronbunshu* (*Trans. Chem. Engng Japan*) **18**(5), 600 (1992).
Y. Yamada, S. Takahashi and H. Maki, Experimental study of gas combustion fluidized bed and radiation contribution to heat transfer inside the bed, *Trans. Japan Soc. Mech. Engrs* **B58**(555), 3318 (1992).

MASS TRANSFER

K. Hijikata, S. K. Lee and T. Nagasaki, Water vapor absorption enhancement in LiBr/H_2O films falling on horizontal tubes, *Trans. Japan Soc. Mech. Engrs* **B58**(547), 885 (1992).
M. Iguchi, H. Tomida, K. Nakajima and Z. Morita, Cold model experiments on mass transfer from a solid body immersed in vertical bubbling jets, *Tetsu to Hagane* (*J. Iron Steel Inst. Japan*) **78**(12), 1786 (1992).
T. Kashiwagi, J. Okajima, Y. Asawa and S. Yamanaka, Mass diffusion in the process of ammonia vapor absorption (2nd report, generation of Marangonian convection by addition of surfactant), *Trans. Japan Soc. Mech. Engrs* **B58**(556), 3697 (1992).
T. Kashiwagi, Y. Asawa and S. Yamanaka, Mass diffusion in the process of ammonia vapor absorption (3rd report, vapor liquid equilibrium diagram of ammonia solution of NaSCN and LiSCN, and mass diffusion in the process of ammonia vapor absorption), *Trans. Japan Soc. Mech. Engrs* **B59**(557), 177 (1993).
H. Kawai, O. Okagaki and S. Fukusako, Heat-transfer characteristics of an insulation with function of removing moisture, *Trans. JAR* **9**(1), 25 (1992).
M. Kiyota and I. Morioka, Numerical method for the absorption of steam into films of aqueous solution of LiBr, *Trans. Japan Soc. Mech. Engrs* **B58**(554), 3167 (1992).
I. Morioka, M. Kiyota, A. Ousaka and T. Kobayashi, Analysis of steam absorption by a subcooled droplet of aqueous solution of LiBr, *J.S.M.E. Int. J.*, Series II (English) **35**(3), 458 (1992).
K. Nakashima and N. Takeyama, Steady-state thermodynamics for crossed transport phenomena of heat and matter, *J. Phys. Soc. Japan* (English) **61**(8), 2754 (1992).
K. C. Ohm and T. Kashiwagi, Characteristics of heat and mass transfer inside vertical falling type of absorber, *Trans. Japan Soc. Mech. Engrs* **B59**(557), 169 (1993).
K. Shinohara, N. Sugamoto and T. Seo, Simulation of thermal and atomic diffusion in unidirectionally frozen Al–Al_3Ni eutectic alloy, *Memo. Fac. Engng Ehime Univ.* **12**(4), 483 (1993).
T. Takahara, A. Hayashida, H. Yabase, E. Hihara and T. Saito, Absorption of water vapor into aqueous solutions of lithium bromide, *Trans. JAR* **9**(3), 235 (1992).

THERMAL RADIATION

A. Hashimoto, H. Igarashi and M. Shimizu, Far infrared irradiation effect on pasteurization of bacteria on or within wet-solid medium, *J. Chem. Engng Japan* (English) **25**(6), 666 (1992).
H. Inaba, H. Otake and S. Nozu, Radiative characteristics of a melting frost layer by radiative energy, *Trans. JAR* **9**(3), 257 (1992).
T. Makino and K. Kaga, Scattering of radiation at a rough surface modelled by a three-dimensional super-imposition technique, *Trans. Japan Soc. Mech. Engrs* **B58**(553), 2827 (1992).
S. Maruyama and N. Shimizu, Temperature distribution in a layer of active thermal insulation system heated by a gas burner, *Trans. Japan Soc. Mech. Engrs* **B58**(552), 2550 (1992).
T. Miyanaga and Y. Nakano, Radiant cooling system; the state of the art assessment, *CRIEPI* (*Central Res. Inst. Elec. Power Ind.*) Rep. T91064, 1 (1992).
M. Shibahara and S. Kotake, Molecular dynamics study of radiative heating and cooling of solids *Trans. Japan Soc. Mech. Engrs* **B58**(556), 3723 (1992).
M. Tamura, Procedure for calculation radiant heat transfer in a combustion-heating furnace, *Kagaku Kogaku Ronbunshu* (*Trans. Chem. Engng Japan*) **18**(2), 182 (1992).
S. Tanaka, Exact radiation view factors between coaxial annular disks of different radii separated by a coaxial cylinder, *Rev. Kobe Univ. Mercantile Marine* **II 40,** 107 (1992).
S. Tanaka and N. Wakabayashi, New exact radiation view factors for annular rings and hemispherical sectors, *Rev. Kobe Univ. Mercantile Marine* **II 40,** 101 (1992).
J. Yamada and Y. Kurosaki, Radiation transfer in fibrous medium with fiber orientation, *Trans. Japan Soc. Mech. Engrs* **B58**(555), 3393 (1992).

MEASUREMENT

T. Fujimoto, T. Ni-imi, Y. Hara, Y. Fukuda and H. Ohba, Measurement of temperature and number density by CARS (application of CARS to plasma jets), *Trans. Japan Soc. Mech. Engrs* **B58**(549), 1459 (1992).
S. Kato and N. Maruyama, Three-dimensional temperature measurement by laser-holographic interferometry (numerical simulation of light deflection and its quantitative compensation for measurement error), *Trans. Japan Soc. Mech. Engrs* **B58**(551), 2308 (1992).
R. Nakajima, K. Sato, M. Kai and Y. Kobayashi, Performance evaluation of carbon resistance thermometers at cryogenic temperature, *Cryogenic Engng* **27**(2), 152 (1992).
K. Nara, H. Kato and M. Okaji, A development of a thin wire resistance thermometer with isotropic magnetoresistance, *Bull. NRLM* (English) **41**(3), 258 (1992).
O. Tamura and H. Sakurai, Rhosium–iron resistance thermometer with fused-silica coil frame, *Bull. NRLM* (English) **41**(2), 134 (1992).
Y. Yamamoto, K. Goto, H. Ichimaru, I. Naruse and K. Ohtake, Optical simultaneous and separate measurement of particle and gas temperature in pulverized coal combustion fields, *Kagaku Kogaku Ronbunshu* (*Trans. Chem. Engng Japan*) **18**(5), 643 (1992).
T. Yoshida, S. Tanaka and T. Makino, A new ellipsoidal mirror-type reflectometer for measuring normal-incident hemispherical reflectance spectrum, *J.S.M.E. Int. J.*, Series II (English) **36**(1), 166 (1993).
Q. Zheng and K. Torii, Response of optical fiber thermometer with blackbody cavity sensor (1st report, step response), *Trans. Japan Soc. Mech. Engrs* **B58**(548), 1182 (1992).
Q. Zheng and K. Torii, Response of optical fiber thermometer with blackbody cavity sensor (2nd report, frequency response), *Trans. Japan Soc. Mech. Engrs* **B58**(548), 1187 (1992).

THERMOPHYSICAL PROPERTIES

T. Akiyama, T. Fukutani, H. Ohta, R. Takahashi, Y. Waseda and J. Yagi, Effective thermal conductivities of products in the stepwise reduction of agglomerated iron ore, *Tetsu to Hagane* (*J. Iron Steel Inst. Japan*) **78**(6), 870 (1992).
C. J. Chang, Volume expansion coefficients and activity coefficients of high-pressure carbon dioxide dissolution in organic liquids at 298 K, *J. Chem. Engng Japan* (English) **25**(2), 164 (1992).
Y.-N. Chang and A. Nagashima, Effect of concentration change on the viscosity of antifreeze solutions, *Trans. Japan Soc. Mech. Engrs* **B59**(558), 599 (1993).
T. Endo, D. Arai and M. Uematsu, Prediction of the critical point and the dew- and bubble-point curves of natural gases, *Trans. Japan Soc. Mech. Engrs* **B59**(558), 529 (1993).

J. Fukai, H. Orita, T. Nejime, K. Saruwatari and O. Miyatake, Effective thermal conductivity of isotropic formed greencarbon during carbonization process, *Kagaku Kogaku Ronbunshu* (*Trans. Chem. Engng Japan*) **19**(1), 76 (1993).
M. Fukushima and N. Watanabe, Thermodynamic properties of HCFC142b, *Trans. JAR* **9**(3), 247 (1992).
K. Haruna, H. Maeta, K. Ohashi and T. Koike, Thermal expansion coefficient of synthetic diamond single crystal, *Japan J. Appl. Phys.* (English) **31**(8), 2527 (1992).
K. Hisano and T. Yamamoto, Specific heat capacity measurements for thin plate specimens by thermal radiation heating, *Japan J. Thermophys. Prop.* **7**(1), 2 (1993).
K. Kanayama, H. Baba, K. Ozeki and H. Nakajima, Thermal radiation properties of carbon fiber-sheet, *Japan J. Thermophys. Prop.* **6**(2), 78 (1992).
A. Kasai, T. Murayama and Y. Ono, Measurement of effective thermal conductivity of coke, *Tetsu to Hagane* (*J. Iron Steel Inst. Japan*) **79**(1), 20 (1993).
G.-R. Li and H. Ohigashi, Pyroelectric coefficient and heat capacity of a ferroelectric copolymer of vinylidene fluoride and trifluoroethylene at low temperatures, *Japan J. Appl. Phys.* (English) **31**(8), 2495 (1992).
N. Matsunaga, M. Hori and A. Nagashima, Measurements of the mutual diffusion coefficients of gases by the Taylor method (2nd report, measurements on the CFC11–air and HCFC123–air systems), *Trans. Japan Soc. Mech. Engrs* **B58**(555), 3389 (1992).
N. Matsunaga, M. Hori and A. Nagashima, Measurements of the mutual diffusion coefficients of gases by the Taylor method (3rd report, measurement on the HCFC22–air system), *Trans. Japan Soc. Mech. Engrs* **B59**(557), 225 (1993).
H. Miyamoto, Y. Horie and A. Nagashima, Anisotropic behavior of the thermal diffusivity of polymer materials (1st report, dependence of anisotropy on injection conditions for spiral-flow samples), *Trans. Japan Soc. Mech. Engrs* **B58**(549), 1518 (1992).
H. Miyamoto, Y. Horie, Y. Tonoshita and A. Nagashima, Anisotropic behavior of the thermal diffusivity of polymer materials (2nd report, dependence of the anisotropy on flow patterns of molten polymer between parallel walls), *Trans. Japan Soc. Mech. Engrs* **B58**(552), 2530 (1992).
M. Okaji and H. Imai, A precision interferometric dilatometer by means of optical heterodyne interferometry, *Japan J. Thermophys. Prop.* **6**(2), 83 (1992).
S. Sato, A. Kurumada, K. Kawamata, T. Sakaki and N. Morita, Measurement of the thermal expansion coefficients of carbon/carbon composites, *J. Fac. Engng Ibaraki Univ.* **40**, 75 (1992).
Y. Shimizu, Y. Nagasaka and A. Nagashima, Experimental study on the forced Rayleigh scattering method using CO_2 laser (1st report, development of the free-surface-heating technique and preliminary measurement of molten salts), *Trans. Japan Soc. Mech. Engrs* **B58**(556), 3703 (1992).
R. P. Stateva and S. G. Tsvetkov, Influence of thermophysical properties extrapolation, in the course of iterative calculations, on the convergence pattern of a simulation algorithm—a general analysis, *J. Chem. Engng Japan* (English) **25**(3), 327 (1992).
Y. Takaishi, H. Nakagawa and K. Oguchi, Measurements of the vapor pressure for the solutions of HCFC-123 and naphthenic base oil, *Trans. JAR* **9**(1), 85 (1992).
E. Takegoshi, Y. Hirasawa, J. Matsuo and K. Okui, A study on effective thermal conductivity of porous metals, *Trans. Japan Soc. Mech. Engrs* **B58**(547), 879 (1992).
E. Takegoshi, Y. Hirasawa and T. Iwaki, An investigation of the thermal conductivity measurement of a nonlinear medium using the transient hot wire method, *Trans. Japan Soc. Mech. Engrs* **B58**(552), 2639 (1992).
N. Tanaka and A. Nagashima, Microscale thermal diffusivity measurement—development of the technique and measurement of anisotropic behavior of a nylon fiber, *Thermal Sci. Engng* (English) **1**(1), 1 (1993).
S. Umezawa, S. Tomita and A. Nagashima, Measurement of the diffusion coefficient of supercritical alkane–SF_6 systems by the Taylor dispersion method, *Trans. Japan Soc. Mech. Engrs* **B59**(558), 499 (1993).
M. Yoshizawa, K. Ikeda, H. Sugawara, N. Toyota, T. Yotsuya and M. Yoshitake, Electrical resistivity and high-field magnetoresistance of Zr–N film thermometers, *Japan J. Appl. Phys.* (English) **31**(8), 2472 (1992).
N. Yoshizawa and M. Uematsu, Evaluation of equations of state for fluid mixtures of the water + ammonia system, *Japan J. Thermophys. Prop.* **6**(4), 240 (1992).

HEAT EXCHANGER

Y. Abe, N. Amiji, S. Ikeda, Y. Dohzono, T. Fushimi, T. Kawanami, T. Hayashi, K. Yoshikawa and S. Shioda, Development of a 2000°C class pebble bed high temperature heat exchanger, *Trans. Japan Soc. Mech. Engrs* **B58**(553), 2898 (1992).
T. Hashizume, Y. Tanzawa, Y. Amano, S. Kameda and T. Machiyama, Dynamic characteristics of two types of water heater to large changes of the water flow rate, *Bull. Sci. Engng Res. Lab. Waseda Univ.* **137**, 51 (1992).
M. Hiramatsu, T. Ishimaru and T. Ohkouchi, Numerical analysis of innerfins for intercoolers, *J.S.M.E. Int. J.*, Series II (English) **35**(3), 406 (1992).
M. Kanzaka and M. Iwabuchi, Study on heat transfer of heat exchangers in the Stirling engine (heat transfer in a heated tube under the periodically reversing flow condition), *J.S.M.E. Int. J.*, Series II (English) **35**(4), 641 (1992).
M. Kanzaka and M. Iwabuchi, Study on heat transfer of heat exchangers in the Stirling engine (performance of heat exchangers in the test Stirling engine), *J.S.M.E. Int. J.*, Series II (English) **35**(4), 647 (1992).
S. Mochizuki, Y. Yagi and T. Hara, Heat transfer and pressure drop performance of wire-fin surfaces, *Trans. Japan Soc. Mech. Engrs* **B58**(556), 3729 (1992).
M. Ozawa, A. Kawamoto, H. Umekawa and I. Ishihara, Flow pattern in a fin-tube type heat exchanger with multiple inlet ports—numerical simulation and flow visualization under isothermal condition, *Trans. JAR* **9**(2), 157 (1992).
Y. Shimada, Y. Iwafuji and T. Yamazaki, Development of EHD (electro-hydrodynamics) heat exchanger, *Therm. Nucl. Power* **43**(5), 591 (1992).
Y. Usami, A. Hagiwara, S. Fukusako and M. Tago, Heat transfer in plate-type reformer tube for fuel cell reformer, *Trans. Japan Soc. Mech. Engrs* **B58**(549), 1630 (1992).

HEAT PIPE AND THERMOSYPHON

F. Kaminaga and Y. Okamoto, Heat transfer characteristics of two-phase thermosyphon heat pipe (1st report, boiling heat transfer correlation in heating section), *Trans. Japan Soc. Mech. Engrs* **B58**(552), 2543 (1992).
H. Kawabe, T. Tanaka and S. Fukusako, Critical heat flux of concentric-tube thermosyphon, *Trans. JAR* **9**(2), 117 (1992).
T. Miyashita, H. Kitayama, T. Ueda and Y. Koizumi, The effect of heating surface configuration on the heat transport characteristics of closed two-phase thermosyphons, *Trans. Japan Soc. Mech. Engrs* **B58**(548), 1234 (1992).
T. Yamamoto, K. Nagata, M. Katsuta and Y. Ikeda, On a heat pipe using liquid mercury as working fluid, *Trans. Japan Soc. Mech. Engrs* **B58**(553), 2904 (1992).
M. Yoshida, H. Imura and S. Ippohshi, The flow and heat transfer in two-phase double-tube thermosyphons (the effect of subcooling), *Trans. Japan Soc. Mech. Engrs* **B59**(557), 191 (1993).

THERMAL STORAGE

H. Inaba, S. Morita, M. Nagaya and S. Nozu, Numerical study on heat storage characteristics of inclined rectangular latent heat storage, *Trans. Japan Soc. Mech. Engrs* **B58**(552), 2556 (1992).

H. Inaba, H. Otake, S. Nozu and T. Fukuda, A study on latent heat storage using a supercooling condition of hydrate (1st report, an estimation of physical properties of hydrate sodium acetate including a supercooling condition), *Trans. Japan Soc. Mech. Engrs* **B58**(553), 2848 (1992).

Y. Itaya, M. Mizuno, T. Ito and M. Hastani, Heat trap and storage performance of salt hydrate packed solar air heater, *Kagaku Kogaku Ronbunshu* (*Trans. Chem. Engng Japan*) **18**(4), 395 (1992).

K. Kaino, Similarity curve in the solidification process of latent heat energy storage unit with straight fins (1st report, effect of Stefan number on the formation of the similarity rule), *Trans. Japan Soc. Mech. Engrs* **B59**(557), 236 (1993).

K. Kaino, Similarity curve in the solidification process of latent heat energy storage unit with straight fins (2nd report, effect of heat transfer tube on the formation of the similarity rule), *Trans. Japan Soc. Mech. Engrs* **B59**(558), 571 (1993).

J. Nam, K. Taniguchi, Y. Ryu and T. Watanabe, Study on floor heating and cooling systems with thermal storage, *Engng Sci. Rep. Kyushu Univ.* (*Kyushu Daigaku Sogorikogaku Kenkyuka Hokoku*) **14**(2), 225 (1992).

H. Umemiya and T. Setoguchi, A study of cooling and heating utilizing aquifer thermal energy storage (design of radiation cooling and heating with thermal comfort), *Trans. Japan Soc. Mech. Engrs* **B58**(556), 3748 (1992).

H. Umemiya, X. Liu and S. Gunji, Fundamental research of aquifer thermal energy storage method (observation of iron bacteria and investigation of biofilter), *Trans. Japan Soc. Mech. Engrs* **B58**(556), 3754 (1992).

Y. Utaka, A. Saito and T. Seki, Gas hydrate cold storage using direct-contact heat transfer of liquid–vapour phase change and natural circulation of refrigerant in closed vessel, *J.S.M.E. Int. J.*, Series II (English) **36**(1), 150 (1993).

VARIOUS APPLICATIONS

T. Asaeda, A. Wake and V. T. Ca, Solar heating of pavement and its effect on lower atmosphere, *Research Rep. Dept. Found. Engng Const. Engng Saitama Univ.* **22,** 21 (1992).

N. Ashiwake, T. Daikoku, K. Kawamura and S. Zushi, Study on a multifin-type thermal conductor for cooling heat dissipating components (1st report, optimum design of the fins), *Trans. Japan Soc. Mech. Engrs* **B58**(547), 865 (1992).

N. Ashiwake, T. Daikoku, K. Kawamura and S. Zushi, Study on a multifin-type thermal conductor for cooling heat dissipating components (2nd report, prediction of thermal contact resistance between a heat-dissipating component and the conductor), *Trans. Japan Soc. Mech. Engrs* **B58**(547), 871 (1992).

N. Ashiwake, Multifin-type thermal conductor for cooling heat-dissipating components (3rd report, theoretical consideration of the effect of anisotropic surface roughness on thermal contact resistance between a component and the conductor), *Trans. Japan Soc. Mech. Engrs* **B58**(554), 3141 (1992).

M. S. Bhatt, K. Srinivasan, M. V. K. Murthy and S. Seetharamu, Thermodynamic modelling of absorption–compression heating cycles with some new working pairs, *J.S.M.E. Int. J.*, Series II (English) **35**(4), 662 (1992).

V. T. Ca and T. Asaeda, The subsurface transport of heat and moisture and its effects on the environment : a numerical model, *Research Rep. Dept. Found Engng Const. Engng Saitama Univ.* **22,** 1 (1992).

K. Fujioka, W. Nakayama and U. Sugino, Numerical simulation of thermal history for Czochralski growth of silicon single crystals, *Trans. Japan Soc. Mech. Engrs* **B58**(554), 3173 (1992).

T. Fujiwara, T. Ohnishi, M. Matsukawa, H. Yamada, K. Noto, K. Sugita and J. Yamamoto, Two-dimensional analysis on transient stability of a strand for high current, pool-cooled superconductor, *Cryogenic Engng* **28**(1), 40 (1993).

T. Fukushima, K. Yanagi, K. Mihara, R. Hashimoto and K. Mizuta, Effect of suction for strip cooling by a roll, *Trans. Japan Soc. Mech. Engrs* **B58**(555), 3452 (1992).

T. Fukushima, K. Yanagi, K. Mihara, R. Hashimoto, K. Mizuta and K. Wada, Numerical analysis of a roll for thermal deformation and contact with strip, *Trans. Japan Soc. Mech. Engrs* **B59**(558), 578 (1993).

N. Ino, T. Nishio and T. Kishi, Study of liquefaction characteristics of a helium liquefier using Claude cycle, *Trans. Japan Soc. Mech. Engrs* **B59**(557), 228 (1993).

Y. Itaya, H. Matusi, K. Adachi and M. Hasatani, Outdoor performance of glass tube-bundle solar air heater, *Kagaku Kogaku Ronbunshu* (*Trans. Chem. Engng Japan*) **18**(2), 219 (1992).

M. Ishida and R. Taprap, Application of energy-utilization diagram for graphic exergy analysis of multicomponent distillation columns, *J. Chem. Engng Japan* (English) **25**(4), 396 (1992).

Y. Kamiya, Application of an EHP system to a heat source of an ordinary residence, *J. Technological Res. Kanto Gakuin Univ.* **35**(2), 117 (1992).

Y. Kaseda, T. Masui and T. Isono, Development of a quenching roll to control the thermal crown and the effect of uniform cooling of a strip, *Tetsu to Hagane* (*J. Iron Steel Inst. Japan*) **78**(5), 782 (1992).

T. Kawamura, H. Katayama, K. Satou, M. Matsuo, H. Hirata and K. Endou, Mechanism of heat transfer in smelting reduction with a thick layer of slag, *Tetsu to Hagane* (*J. Iron Steel Inst. Japan*) **78**(3), 367 (1992).

N. Koizumi, K. Yoshida, T. Isono, H. Hiue, T. Sasaki, Y. Takahashi, T. Ando, J. R. Armstrong, M. Nishi, H. Tsuji, M. Shimada, H. Mukai, M. Ono and Y. Wachi, Test results of the DPC-TJ—stability performance, *Cryogenic Engng* **27**(3), 233 (1992).

K. Kouzai and M. Saitou, Evaluation of sea surface skin temperature using heat balance model, *Rev. Kobe Univ. Mercantile Marine, II* **40,** 91 (1992).

Y, Nakayama, H. Satoh, N. Saitou, S. Hirasawa, T. Yanagida and H. Todokoro, Thermal characteristics of Si mask for EB cell projection lithography, *Japan J. Appl. Phys.* (English) **31**(12B), 4268 (1992).

Y. Nawata, Optimum design of system parameters for solar cooling and heating system aided by a photovoltaic array, *Research Rep. Yatsushiro Nal. College Technol.* **14,** 5 (1992).

S. Nishio, T. Inada and H. Nakagome, Shuttle heat transfer in refrigerators, *Cryogenic Engng* **27**(6), 507 (1992).

T. Saitoh and T. Fukushima, Measurement of temperature distribution in underground and heatflow on buried pipes of international garden and greenery expo. Osaka, Japan, 1990, *Bull. Sci. Engng Res. Inst. Kokushikan Univ.* **4,** 80 (1991).

T. Sato, K. Itomi and I. Suzuki, Experimental study on heat transfer from ball bearing to lubricating oil (in the case of oil bath lubrication), *Trans. Japan Soc. Mech. Engrs* **B58**(556), 3735 (1992).

Y. Sawa, K. Takeda, S. Taguchi, T. Matsumoto, Y. Watanabe and H. Kamano, Influence of low permeability zone in blast furnace herth on temperature distribution in furnace bottom and on iron and slag tapping indices, *Tetsu to Hagane* (*J. Iron Steel Inst. Japan*) **78**(7), 1171 (1992).

M. Sugimoto, T. Kato, K. Kawano, T. Hiyama, Y. Kamiyauchi, H. Ishida, S. Iwamoto, A. Miyake, H. Ebisu, K. Okuno, N. Koizumi, E. Tada, M. Nishi, H. Tsuji, M. Ono, H. Mukai and Y. Wachi, Test results of the DPC—thermal and hydraulic performance, *Cryogenic Engng* **27**(3), 239 (1992).

M. Tajima and K. Chida, Effect of carbon content (0.34~0.73%) on phase transformation of steel during quenching in water, *Trans. Japan Soc. Mech. Engrs* **B58**(555), 3407 (1992).

A. Tominaga, Phase dependences of pulse-tube refrigerators, *Cryogenic Engng* **27**(2), 134 (1992).

A. Tominaga, Phase controls for pulse-tube refrigerator of the third generation, *Cryogenic Engng* **27**(2), 146 (1992).

A. Tominaga, Thermoacoustic theory of viscous fluid, part

1—energy conversion and energy flux of small cycles, *Cryogenic Engng* **27**(7), 543 (1992).
A. Tominaga, Thermoacoustic theory of viscous fluid, part 2—average over the cross-sectional area of flow channel, *Cryogenic Engng* **27**(7), 549 (1992).
A. Tominaga, Thermoacoustic theory of viscous fluid, part 3—radial distribution of velocity and entropy, *Cryogenic Engng* **28**(2), 535 (1993).
A. Tominaga, Thermoacoustic theory of viscous fluid, part 4—axial variations, *Cryogenic Engng* **28**(2), 108 (1993).
T. Tsukada and M. Hozawa, A theoretical study of the temperature field in a pancake CVD reactor, *J. Chem. Engng Japan* (English) **25**(6), 692 (1992).
F. Unezaki, E. Hihara, F. Matsuoka and T. Saito, Modeling of a heat pump cycle, *Trans. Japan Soc. Mech. Engrs* **B58**(556), 3760 (1992).
J.-B. Wang, R. Takahashi and J. Yagi, Simultaneous analysis of flow, heat transfer and mass transfer in a sludge melting furnace, *Kagaku Kogaku Ronbunshu* (*Trans. Chem. Engng Japan*) **18**(5), 659 (1992).
S. Yamamoto, T. Matsuoka, Y. Inoue and H. Takahashi, Unsteady thermal analysis of injection mold by boundary element method, *Trans. Japan Soc. Mech. Engrs* **B58**(547), 898 (1992).
A. Yamauchi, K. Sorimachi, T. Sakuraya and T. Fujii, Heat transfer between mold and slab through mold flux film in continuous casting of steel, *Tetsu to Hagane* (*J. Iron Steel Inst. Japan*) **79**(2), 167 (1993).
T. Yanagisawa, T. Shimizu, M. Fukuta and K. Ikeda, Mathematical model of variable speed refrigerant compressor to predict its transient behavior, *Trans. JAR* **9**(1), 65 (1992).
H. Yasui and Y. Tsuda, ITO thin films prepared by magnetron sputtering method using ITO target (effects of plasma conditions and substrate temperature on ITO film properties), *Trans. Japan Soc. Mech. Engrs* **B59**(558), 593 (1993).
T. Yokoyama, T. Satoh, I. Kato, Y. Kasahara and K. Kawamura, Heat analysis of a metal mold with resinous flow, *Trans. Japan Soc. Mech. Engrs* **B58**(555), 3445 (1992).

MISCELLANEOUS

A. Bar-Cohen, Thermal management of electronic components with dielectric liquids, *J.S.M.E. Int. J.*, Series II (English) **36**(1), 1 (1993).
K. Hijikata, The operating system of the Heat Transfer Handbook and its extension to personal programing, *Thermal Sci. Engng* **1**(1), 19 (1993).
E. Inagaki and H. Kawamura, Efficiency of parallel computation of Poisson equation using a transputer array, *Trans. Japan Soc. Mech. Engrs* **B59**(558), 427 (1993).
Y. Kizaki, H. Azuma, S. Yamazaki, H. Sugimoto and S. Takagi, Phenomenological studies in laser cladding. Part II. Thermometrical experiments on the melt pool, *Japan J. Appl. Phys.* (English) **32**(1A), 213 (1993).
H. Koibuchi, A Monte Carlo study of one-dimensional interfaces, *Trans. Japan Soc. Mech. Engrs* **B58**(555), 3401 (1992).
S. Maruyama, M. Shoji and S. Matsumoto, Infrared spectra of diatomic molecules by molecular dynamics method, *J. Fac. Engng, Univ. Tokyo* **A-30**, 26 (1992).
H. Nishiyama, M. Okubo, T. Miyadera and S. Kamiyama, Numerical analysis of heat transfer and fluid flow in plasma spraying, *Trans. Japan Soc. Mech. Engrs* **B58**(547), 736 (1992).
H. Ohta, T. Matsuzaka, N. Saitou, K. Kawasaki, K. Nakamura, T. Kohno and M. Hoga, Error analysis in electron beam lithography system–thermal effects on positioning accuracy, *Japan J. Appl. Phys.* (English) **31**(12B), 4253 (1992).
K. Shioda, Y. Hashidate and M. Kumagai, Molecular dynamical studies on heat transfer characteristics in electron beam processing, *J.S.M.E. Int. J.*, Series II (English) **35**(2), 273 (1992).